



SEQUENCE LISTING

<110> Tucker, Kenneth

Plosila, Laura

<120> MORAXELLA CATARRHALIS OUTER MEMBRANE PROTEIN-106
POLYPEPTIDE, GENE SEQUENCE AND USES THEREOF

<130> 7969-089-999

<140> US 09/813,214

<141> 2001-03-20

<150> US 08/968,685

<151> 1997-11-12

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<170> PatentIn version 3.0

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 Gly Asp Gly Leu Lys Val Gln Leu Ala Glu Thr Leu Thr Ser Leu Lys
 405 410 415
 Met Val Thr Thr Glu Asn Leu Thr Ala Asn Glu Lys Val Thr Val Gly
 420 425 430
 Lys Thr Arg Leu Thr Thr Asp Lys Ile Gly Phe Thr Asn Asp Met Asn
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 Gly Ile Asp Glu Ser Lys Pro Tyr Leu Asp Lys Asp Thr Gly Ile His
 450 455 460
 Ala Gly Gly Gln Lys Ile Thr Lys Leu Thr Ala Gly Val Val Asp Asp
 465 470 475 480
 Asp Ala Ala Thr Tyr Gly Gln Leu Lys Lys Val Asn Gln Thr Ala Glu
 485 490 495
 Ser Ala Leu Gln Thr Phe Thr Val Lys Lys Val Asp Lys Asn Gly Asn
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 Asp Ala Asn Asp Ser Lys Ile Ile Thr Val Gly Lys Asn Asn Lys Pro
 515 520 525
 Asp Gly Thr Gln Val Asn Thr Leu Lys Leu Lys Gly Glu Asn Gly Val
 530 535 540
 Asp Val Thr Thr Glu Thr Asn Gly Thr Val Thr Phe Gly Leu Asn Gln
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Asn Asn Gly Leu Thr Val Gly Asn Ser Thr Leu Asn Asn Asp Gly Leu
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 Ser Val Lys Asn Thr Asn Ser Asn Lys Gln Ile Gln Val Gly Ala Asp
 580 585 590
 Gly Ile Thr Phe Thr Asp Ile Ser Asn Ser Lys Pro Gly Ala Gly Ile
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 Glu Asn Thr Thr Arg Ile Thr Arg Asp Gly Ile Gly Phe Ala Asn Asn
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 Thr Gly Ser Leu Asp Ala Asn Lys Pro Arg Leu Thr Pro Thr Gly Ile
 625 630 635 640
 Asn Ala Gly Gly Lys Glu Leu Thr Asn Val Gln Ser Ala Ile Asn Pro
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 Ala Thr Asn Gly Gly Gln Leu Asp Phe Met Asn Arg Leu Ser Thr Ala
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 Asn Thr Glu Lys Ser Gly Ser Ala Ala Thr Ile Lys Asp Leu Tyr Asn
 675 680 685
 Leu Ser Gln Val Pro Leu Thr Phe Ala Gly Asp Thr Gly Pro Asn Val
 690 695 700
 Thr Lys Lys Leu Gly Glu Ile Leu Lys Val Lys Gly Gly Lys Thr Thr
 705 710 715 720
 Ala Asp Asp Leu Thr Lys Asn Asn Ile Gly Val Val Ala Asp Ser Thr
 725 730 735
 Asp Asn Ser Leu Thr Val Lys Leu Ala Lys Thr Leu Ser Asp Leu Asp
 740 745 750
 Ala Val Asn Thr Lys Thr Leu Thr Ala Ser Asp Lys Val Thr Val Asp
 755 760 765
 Ser Gly Asn Asn Thr Ala Lys Leu Gln Asn Gly Asp Leu Thr Phe Ser
 770 775 780
 Lys Gln Asn Thr Gly Ala Thr Pro Ala Thr Asn Ser Lys Thr Ile Gly
 785 790 795 800
 Val Asp Gly Leu Lys Phe Thr Asp Asn Asn Gly Ile Ala Leu Asp Gly
 805 810 815
 Thr Thr Tyr Ile Thr Lys Asp Lys Val Gly Phe Ala Lys Gln Asp Gly
 820 825 830
 Ser Leu Asp Lys Ser Lys Pro Tyr Leu Asp Lys Asp Lys Leu Lys Val
 835 840 845
 Gly Glu Val Glu Ile Thr Thr Asn Gly Ile Asn Ala Gly Gly Lys Ala
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Ile Thr Gly Leu Ser Asn Thr Leu Thr Asp Ala Thr Asn Ala Thr Thr
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 Gly His Val Thr Gln Leu Gly Ile Val Asp Ser Thr Asp Lys Thr Arg
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 Ala Ala Ser Ile Gly Asp Val Leu Asn Ala Gly Phe Asn Leu Lys Asn
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 Asn Gly Asp Ala Lys Asp Phe Val Ser Thr Tyr Asp Thr Val Asp Phe
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 Ile Asn Gly Asn Ala Thr Thr Ala Lys Val Thr Tyr Asp Gly Lys Ala
 930 935 940
 Ser Lys Val Ala Tyr Asp Val Asn Val Asp Gly Thr Thr Ile His Leu
 945 950 955 960
 Thr Gly Ala Asp Gly Asn Lys Asn Gln Ile Gly Val Lys Thr Thr Thr
 965 970 975
 Leu Thr Lys Thr Asp Ala Lys Gly Asp Lys Ala Ile Asn Phe Ser Val
 980 985 990
 Asn Ser Gly Asp Asp Lys Ala Leu Ile Asn Ala Lys Asp Ile Ala Asp
 995 1000 1005
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 Ala Asp Thr Ala Leu Gln Thr Phe Gln Val Lys Lys Val Lys Glu
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 1055 1060 1065
 Asn Gly Leu Asp Ile Gln Thr Asn Lys Asp Gly Thr Val Thr Phe
 1070 1075 1080
 Gly Ile Asn Thr Gln Ser Gly Leu Lys Ala Gly Asn Asn Thr Thr
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 Leu Asn Asn Asn Gly Leu Ser Ile Lys Asn Thr Ala Gly Asn Glu
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 Gln Ile Gln Val Gly Ala Asp Gly Val Lys Phe Ala Lys Val Asn
 1115 1120 1125
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 1130 1135 1140
 Arg Asp Glu Ile Gly Phe Ala Gly Thr Asn Gly Ser Leu Asp Lys
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Ser	Lys	Pro	His	Leu	Ser	Lys	Asp	Gly	Ile	Asn	Ala	Gly	Gly	Lys
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Lys	Ile	Thr	Asn	Ile	Gln	Ser	Gly	Glu	Ile	Ala	Gln	Asn	Ser	Asn
1175						1180					1185			
Asp	Ala	Val	Thr	Gly	Gly	Lys	Ile	Tyr	Asp	Leu	Lys	Thr	Glu	Leu
1190						1195					1200			
Glu	Asn	Lys	Ile	Ser	Ser	Thr	Ala	Lys	Thr	Ala	Gln	Asn	Ser	Leu
1205						1210					1215			
His	Glu	Phe	Ser	Val	Ala	Asp	Glu	Gln	Gly	Asn	Asn	Phe	Thr	Val
1220						1225					1230			
Ser	Asn	Pro	Tyr	Ser	Ser	Tyr	Asp	Thr	Ser	Lys	Thr	Ser	Asp	Val
1235						1240					1245			
Ile	Thr	Phe	Ala	Gly	Glu	Asn	Gly	Ile	Thr	Thr	Lys	Val	Asn	Lys
1250						1255					1260			
Gly	Val	Val	Arg	Val	Gly	Ile	Asp	Gln	Thr	Lys	Gly	Leu	Thr	Thr
1265						1270					1275			
Pro	Lys	Leu	Thr	Val	Gly	Asn	Asn	Asn	Gly	Lys	Gly	Ile	Val	Ile
1280						1285					1290			
Asp	Ser	Gln	Asn	Gly	Gln	Asn	Thr	Ile	Thr	Gly	Leu	Ser	Asn	Thr
1295						1300					1305			
Leu	Ala	Asn	Val	Thr	Asn	Asp	Lys	Gly	Ser	Val	Arg	Thr	Thr	Glu
1310						1315					1320			
Gln	Gly	Lys	Ile	Ile	Lys	Asp	Glu	Asp	Lys	Thr	Arg	Ala	Ala	Ser
1325						1330					1335			
Ile	Val	Asp	Val	Leu	Ser	Ala	Gly	Phe	Asn	Leu	Gln	Gly	Asn	Gly
1340						1345					1350			
Glu	Ala	Val	Asp	Phe	Val	Ser	Thr	Tyr	Asp	Thr	Val	Asn	Phe	Ala
1355						1360					1365			
Asp	Gly	Asn	Ala	Thr	Thr	Ala	Lys	Val	Thr	Tyr	Asp	Asp	Thr	Ser
1370						1375					1380			
Lys	Thr	Ser	Lys	Val	Val	Tyr	Asp	Val	Asn	Val	Asp	Asp	Thr	Thr
1385						1390					1395			
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1400						1405					1410			
Thr	Ser	Thr	Gly	Thr	Gly	Ala	Asn	Lys	Phe	Ala	Leu	Ser	Asn	Gln
1415						1420					1425			
Ala	Thr	Gly	Asp	Ala	Leu	Val	Lys	Ala	Ser	Asp	Ile	Val	Ala	His
1430						1435					1440			

Leu	Asn	Thr	Leu	Ser	Gly	Asp	Ile	Gln	Thr	Ala	Lys	Gly	Ala	Ser
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Gln	Ala	Asn	Ser	Ser	Ala	Gly	Tyr	Val	Asp	Ala	Asp	Gly	Asn	Lys
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Val	Ile	Tyr	Asp	Ser	Thr	Asp	Asn	Lys	Tyr	Tyr	Gln	Ala	Lys	Asn
1475						1480					1485			
Asp	Gly	Thr	Val	Asp	Lys	Thr	Lys	Glu	Val	Ala	Lys	Asp	Lys	Leu
1490						1495					1500			
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Val	Lys	Ser	Val	Ile	Asn	Lys	Glu	Gln	Val	Asn	Asp	Ala	Asn	Lys
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Lys	Gln	Gly	Ile	Asn	Glu	Asp	Asn	Ala	Phe	Val	Lys	Gly	Leu	Glu
1535						1540					1545			
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1565						1570					1575			
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1580						1585					1590			
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1595						1600					1605			
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1610						1615					1620			
Asp	Leu	Thr	Asn	Leu	Asn	Ser	Val	Asn	Ala	Gly	Gly	Thr	Lys	Ile
1625						1630					1635			
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Ala	Asn	Thr	Pro	Val	Leu	Ser	Ala	Asn	Gly	Leu	Asp	Leu	Gly	Gly
1655						1660					1665			
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Thr	Val	Ile	Lys	Ala	Gly	Thr	Val	Leu	Gly	Gly	Lys	Gly	Asn	Asn
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1745						1750					1755			
Lys	Asp	Gly	Asn	Ala	Asn	Gly	Asp	Leu	Ser	Asn	Val	Trp	Val	Lys
1760						1765					1770			
Thr	Gln	Lys	Asp	Gly	Ser	Lys	Lys	Ala	Leu	Leu	Ala	Thr	Tyr	Asn
1775						1780					1785			
Ala	Ala	Gly	Gln	Thr	Asn	Tyr	Leu	Thr	Asn	Asn	Pro	Ala	Glu	Ala
1790						1795					1800			
Ile	Asp	Arg	Ile	Asn	Glu	Gln	Gly	Ile	Arg	Phe	Phe	His	Val	Asn
1805						1810					1815			
Asp	Gly	Asn	Gln	Glu	Pro	Val	Val	Gln	Gly	Arg	Asn	Gly	Ile	Asp
1820						1825					1830			
Ser	Ser	Ala	Ser	Gly	Lys	His	Ser	Val	Ala	Ile	Gly	Phe	Gln	Ala
1835						1840					1845			
Lys	Ala	Asp	Gly	Glu	Ala	Ala	Val	Ala	Ile	Gly	Arg	Gln	Thr	Gln
1850						1855					1860			
Ala	Gly	Asn	Gln	Ser	Ile	Ala	Ile	Gly	Asp	Asn	Ala	Gln	Ala	Thr
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Gly	Asp	Gln	Ser	Ile	Ala	Ile	Gly	Thr	Gly	Asn	Val	Val	Ala	Gly
1880						1885					1890			
Lys	His	Ser	Gly	Ala	Ile	Gly	Asp	Pro	Ser	Thr	Val	Lys	Ala	Asp
1895						1900					1905			
Asn	Ser	Tyr	Ser	Val	Gly	Asn	Asn	Asn	Gln	Phe	Thr	Asp	Ala	Thr
1910						1915					1920			
Gln	Thr	Asp	Val	Phe	Gly	Val	Gly	Asn	Asn	Ile	Thr	Val	Thr	Glu
1925						1930					1935			
Ser	Asn	Ser	Val	Ala	Leu	Gly	Ser	Asn	Ser	Ala	Ile	Ser	Ala	Gly
1940						1945					1950			
Thr	His	Ala	Gly	Thr	Gln	Ala	Lys	Lys	Ser	Asp	Gly	Thr	Ala	Gly
1955						1960					1965			
Thr	Thr	Thr	Thr	Ala	Gly	Ala	Thr	Gly	Thr	Val	Lys	Gly	Phe	Ala
1970						1975					1980			
Gly	Gln	Thr	Ala	Val	Gly	Ala	Val	Ser	Val	Gly	Ala	Ser	Gly	Ala
1985						1990					1995			
Glu	Arg	Arg	Ile	Gln	Asn	Val	Ala	Ala	Gly	Glu	Val	Ser	Ala	Thr
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Ser Thr Asp Ala Val Asn Gly Ser Gln Leu Tyr Lys Ala Thr Gln
 2015 2020 2025

Gly Ile Ala Asn Ala Thr Asn Glu Leu Asp His Arg Ile His Gln
 2030 2035 2040

Asn Glu Asn Lys Ala Asn Ala Gly Ile Ser Ser Ala Met Ala Met
 2045 2050 2055

Ala Ser Met Pro Gln Ala Tyr Ile Pro Gly Arg Ser Met Val Thr
 2060 2065 2070

Gly Gly Ile Ala Thr His Asn Gly Gln Gly Ala Val Ala Val Gly
 2075 2080 2085

Leu Ser Lys Leu Ser Asp Asn Gly Gln Trp Val Phe Lys Ile Asn
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